

Research Note

***Athesmioides aiolos* Cribb and Spratt, 1992 (Digenea: Dicrocoeliidae), from *Potorous tridactylus* (Marsupialia: Potoroidae) in Tasmania, Australia**

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ABSTRACT: *Athesmioides aiolos* Cribb and Spratt, 1992, is recorded from *Potorous tridactylus* (Marsupialia: Potoroidae) from Tasmania, Australia. The specimens are much larger than those reported previously from rodents, but the differences are interpreted as being host-induced. This is the first record of a dicrocoeliid from a macropodoid marsupial.

KEY WORDS: Digenea, Dicrocoeliidae, *Athesmioides*, Australia, marsupial, *Potorous tridactylus*.

The Dicrocoeliidae is one of the principal families of digenetic trematodes infecting terrestrial mammals. Cribb and Spratt (1992) summarized information on 6 described species of dicrocoeliids from Australian native mammals. These species, together with several undescribable forms, were reported from marsupials (dasyurids, peramelids, and petaurids) and from rodents (murids). In an addendum, attention was drawn to poor, undescribable fragments of a dicrocoeliid from the long-nosed potoroo (*Potorous tridactylus*) from Tasmania. Further specimens of this species have now become available and are described herein.

Potoroos are cat-sized, forest-dwelling marsupials that belong to the Macropodoidea, the superfamily that contains the kangaroos and wallabies, which are the most conspicuous part of the Australian mammal fauna. Although the Macropodoidea includes about 50 species in Australia, only 4 trematodes have been reported from the group: *Fasciola hepatica*, 2 species of paramphistomes, and a possible psilostomid (Spratt et al., 1990).

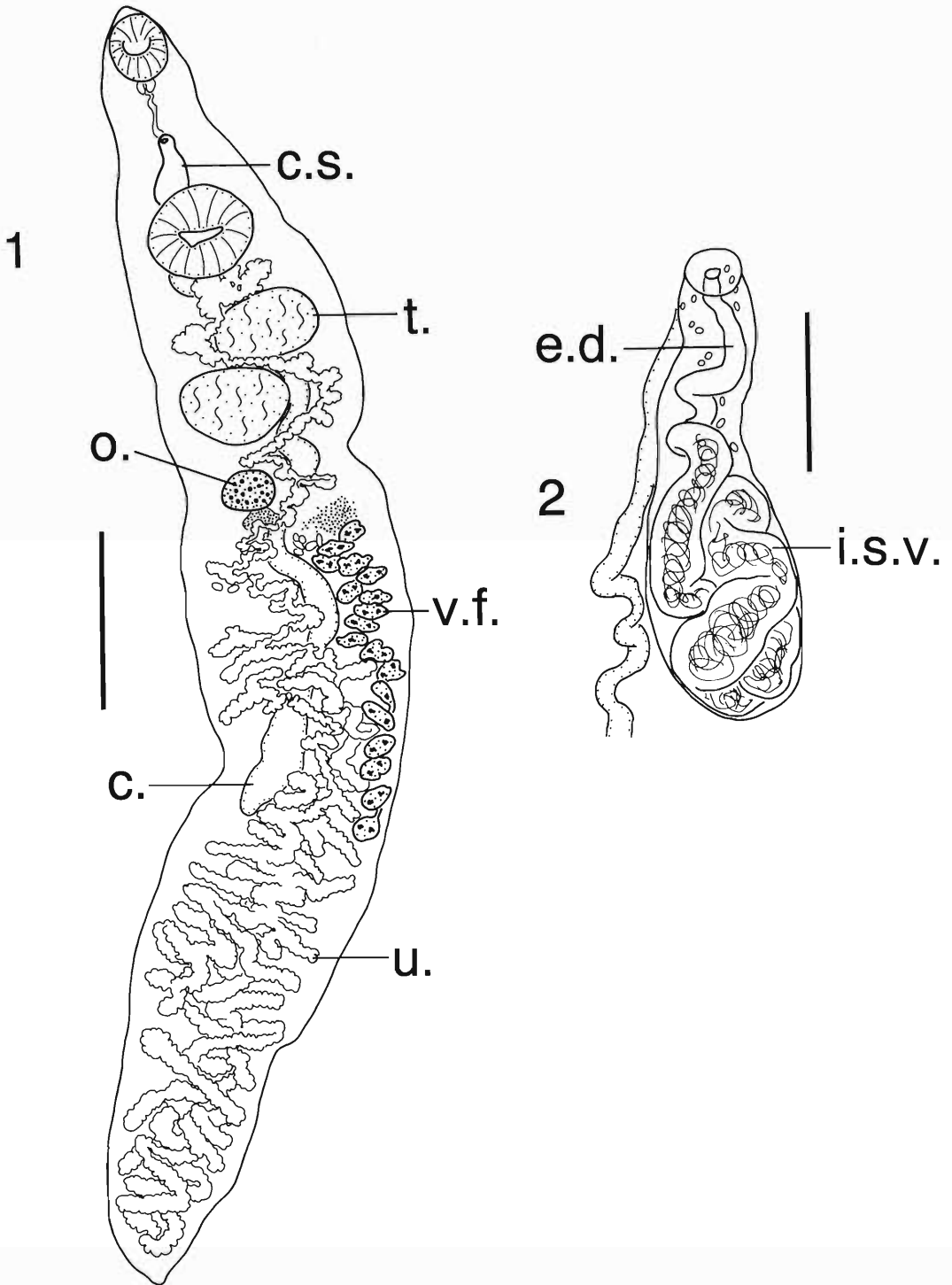
Specimens were collected by Dr. D. Obendorf. Whole mounts were stained with Mayer's hematoxylin, dehydrated in ethanol, cleared in methyl salicylate, and mounted in Canada balsam. All measurements are given in micrometers as ranges with means in parentheses. Figures were drawn with the aid of a camera lucida.

***Athesmioides aiolos* Cribb and Spratt, 1992 (Figs 1, 2)**

MATERIAL EXAMINED: Abundant in bile ducts *Potorous tridactylus* (Kerr, 1792) (Marsupialia: Potoroidae), 6 km south of Beaconsfield, 41°11'S, 146°46'E, Tasmania, 24 June 1992.

DEPOSITION OF SPECIMENS: Queensland Museum, Brisbane, QM G 212965-74.

DESCRIPTION (measurements are of 15 specimens.): Body elongate, lanceolate, 2,928–6,224 (4,581) long and 304–656 (491) wide, body length/width ratio 4.68–20.47 (10.18). Forebody 366–931 (653), occupies 11–18% (14) body length. Distinct preoral lobe present. Oral sucker 132–270 (210) by 141–218 (185). Ventral sucker weakly muscular, 212–334 (258) by 221–398 (304). Ratio oral to ventral sucker widths 1:1.3–1.9 (1.6). Pharynx 32–58 (43) by 45–71 (58). Esophagus muscular, extends dorsal to cirrus sac. Cecum undivided, thin-walled, inconspicuous, extends to near posterior end of vitellarium. Testes diagonal to tandem depending on contraction of body, separated by uterus; anterior testis may overlap ventral sucker slightly in contracted specimens or may be separated from it, 186–411 (322) by 205–366 (296); posterior testis 225–475 (348) by 238–379 (309). Cirrus sac almost entirely dorsal, partly dorsal or entirely anterior to ventral sucker depending on state of contraction of body, 193–334 (247) by 61–96 (78), contains winding internal seminal vesicle, opens at common genital pore just in front of ventral sucker. Ovary 116–193 (161) by 109–244 (173). Seminal receptacle dorsal, posterior to ovary. Laurer's canal opens dorsally at level of ovary. Vitellarium in form of 14–18 (16) follicles forming band on left or right side (usually left) of body, lateral to uterus, from close to posterior margin of ovary, to point 603–1,929 (1,485) from posterior end of body; field occupies 19–32% (24) body length.



Figures 1, 2. *Athesmioides aiolos* from *Potorous tridactylus* from Tasmania. 1. Adult, ventral. Scale = 0.5 mm. c. = cecum, c.s. = cirrus sac, o. = ovary, t. = testis, u. = uterus, v.f. = vitelline follicle. 2. Cirrus sac, ventral. Scale = 0.1 mm. e.d. = ejaculatory duct, i.s.v. = internal seminal vesicle.

Uterus passes posteriorly from ovary in laterally directed coils to point near posterior end of body, then passes anteriorly laterodorsally to ovary, between testes, and finally passes to common genital pore. Eggs operculate, tanned, 32–43 (38) by 14–21 (17) ($n = 15$). Excretory vesicle I-shaped, extends to near anterior end of vitelline field.

REMARKS: Our specimens are all considerably larger than those reported by Cribb and Spratt (1992) from the rodents *Rattus fuscipes*, *R. lutreolus*, *R. norvegicus*, and *Pseudomys higginsii*. The specimens from rodents were 1–3 mm long, whereas those from *Potorous tridactylus* are 3–6 mm. In the specimens of similar length (approximately 3 mm), the specimens from the potoroo differed in body width and ventral and oral sucker widths, typically twice as wide as those from rodents. Apart from these size differences, these specimens are otherwise indistinguishable from *A. aiolos*. We believe the morphological distinctions simply represent host-induced intra-specific variability. The potoroo is a far larger animal than the rodents reported as hosts for this species and typically weighs approximately 1 kg, whereas none of the rodents weigh more than 200 g (Strahan, 1983). We hypothesize that this difference is reflected by an increase in the size

of the bile ducts allowing the microcoeliids in the potoroo to grow larger.

The identification proposed here requires that this parasite is shared by both eutherians and marsupials. Although such low specificity is superficially surprising, 2 observations make it plausible. The first is that another liver fluke, *Fasciola hepatica*, is also shared between a wide range of eutherians and marsupials (Spratt et al., 1990). The second is that, because microcoeliids obviously have not co-evolved with marsupials, the parasite has been acquired by host-switching from rodents at some stage. Rodent and marsupial populations in Tasmania are sympatric, thus making this possible.

We thank Dr. D. Obendorf for sending us the specimens examined here.

Literature Cited

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